LG LBS Three position type

- Feature
- Use / Choice of function
- Standard components
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- Outline dimension (mm)
- Structure
- Cable connection system

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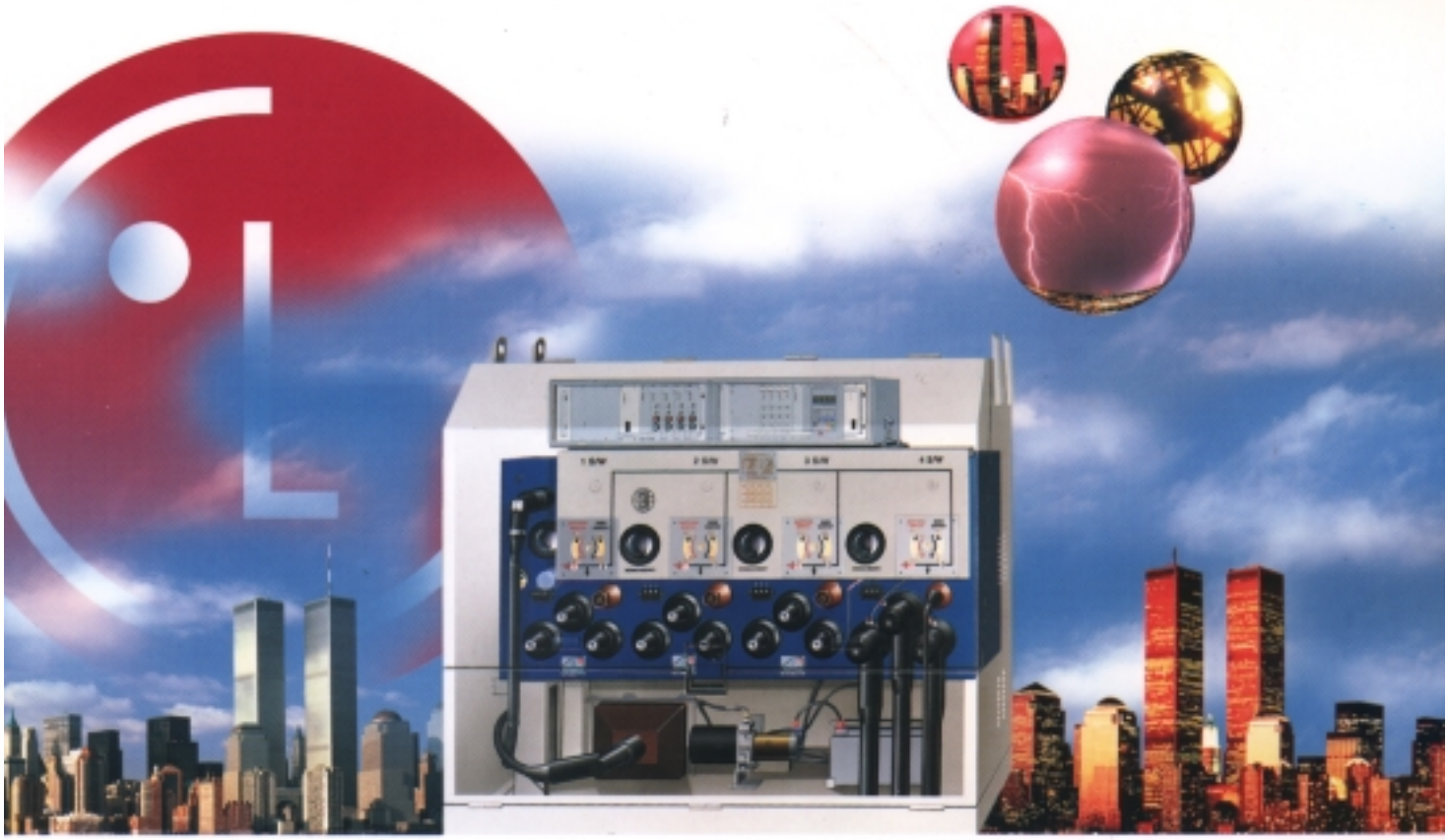
LG SF_6 Gas Loadbreak Switches

TriPak
Three Position Switch

For 200A and 600A under ground cable systems through 27kV



LG Industrial Systems

Safe and Easy grounding of the cable circuit
Integral third switching function
New Rotary Puffer style switches

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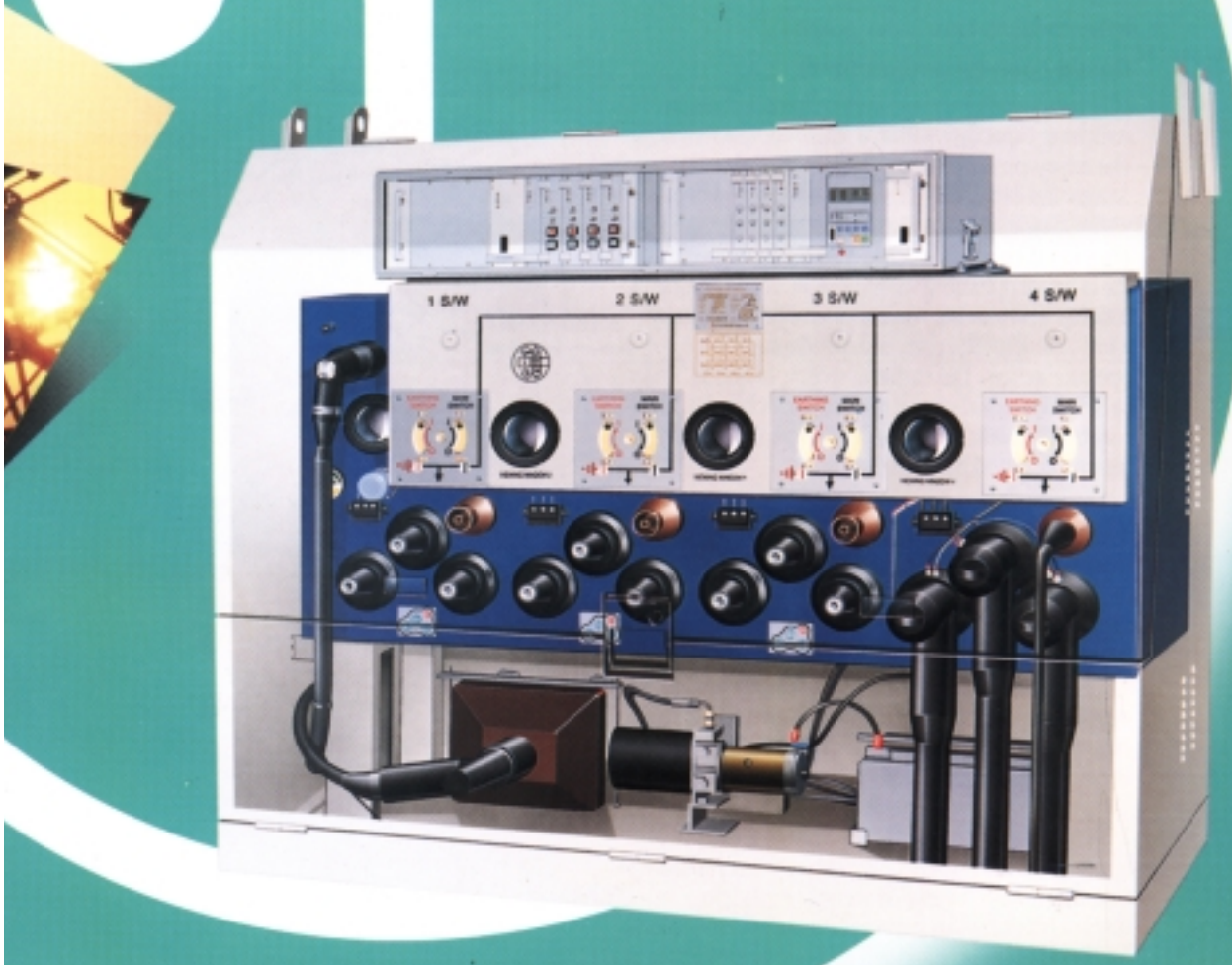

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Features

LG TriPak 3-position switches have spring operated mechanism which permits an integral third switching function to increase the application capability over conventional 2-position (close-open)switches.
TriPak switches are designed and constructed to provide economical, safe and reliable switching in a small, light weight package.
Using SF6 for insulation and unique arc-interruption, rotary-puffer eliminates space, weight and maintenance costs, as well as hazards associated with vacuum, air or oil-filled equipment.

● Breaking and switching capacity

The TriPak switches range complies with IEC 265 and IEEE / ANSI C.37 recommendations for "frequently operated switches"
100 CO Cycles at rated current

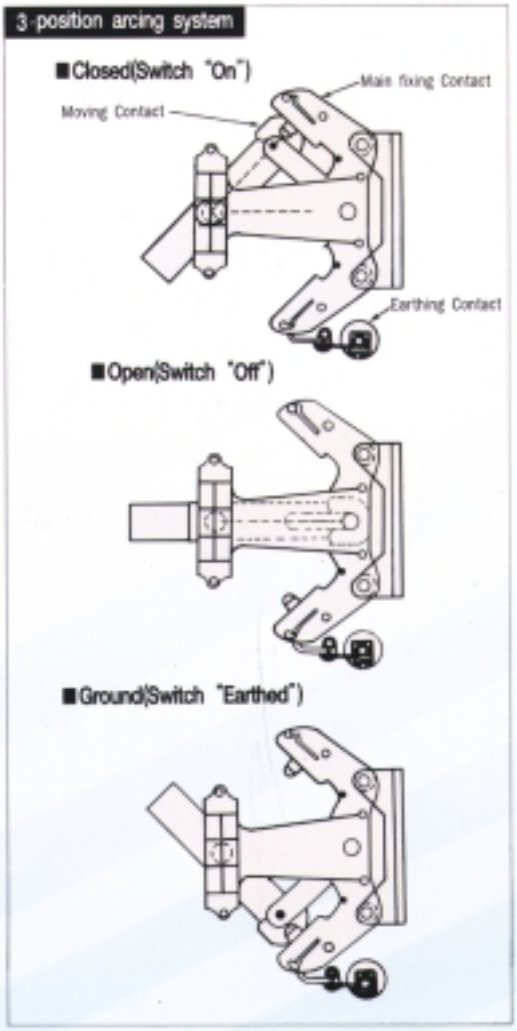
● The switches have three position

closed-open-ground(earthed)

LG's rotary-puffer contact system have 3-position switching capability within a single compact switch.
The rotary-puffer contact system is modular in design and capable of alignment checks and bench testing in the switch tank.
The operating mechanism is directly connected to the external operating shaft by means of a rotating contact. The moving contact assembly is driven by a fast-acting mechanism, independence of operator action. The earthing switch, enclosed in SF6, has a short-circuit making capacity as required by standards. The TriPak combines both interrupting and isolating functions.

An integral ground(earthed)position with in the tank permits safe and easy grounding of the cable circuit without having to disconnect elbow or other cable entrance connection.
Switching to a ground(earthed)position is accomplished through the simple turn of the operating handle without having to de-energize other circuits through the switch. This feature is beneficial for applications using lead covered cables where cable movement needs to be minimized.
LG TriPak switches also have an internal test position which provides safe and easy hi-pot testing of cable circuits through the switch without having to disconnect elbow or other cable entrance connections.
Earth bushings are provided as a test or grounding point.

3-position arcing system



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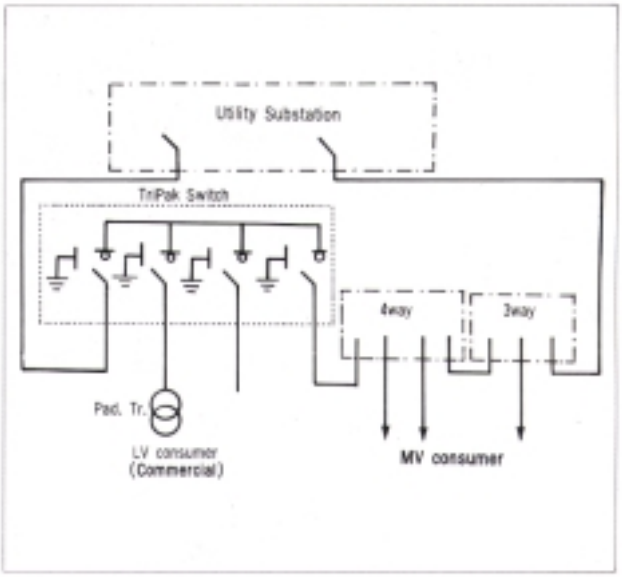
Use

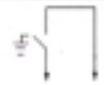
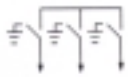
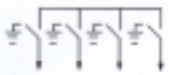
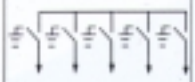
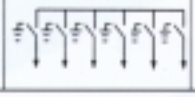
The TriPak switches are designed for MV underground distribution network system up to 27kV.
It also can be used to connect the padmounted transformers for power supply to residential or commercial area and to supply MV power to medium size building or industrial area directly.
And the TriPak switches have various switching configurations;

- 4 way 4 switched
- 3 way 3 switched
- 4 way 2 switched
- 2 way 1 switched
- 6 way 6 switched



Choice of function

TriPak switches shall have various 3 phase entrance ways and switched ways as followings;

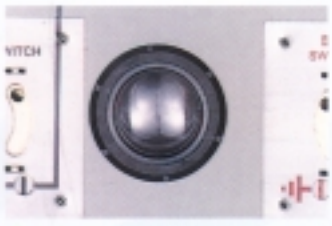
Switch configuration	One-line diagram (Horizontal position)	Max. Voltage (kV)	Type no.	Width(mm)
2way 1switched		15.5	LGS-A-M-15-6-12-21-D	420
		27	LGS-A-M-24-6-12-21-D	
3way 3switched		15.5	LGS-A-M-15-6-12-33-D	1,190
		27	LGS-A-M-24-6-12-33-D	
4way 2switched		15.5	LGS-A-M-15-6-12-42-D	1,580
		27	LGS-A-M-24-6-12-42-D	
4way 4switched		15.5	LGS-A-M-15-6-12-44-D	1,580
		27	LGS-A-M-24-6-12-44-D	
5way 5switched		15.5	LGS-A-M-15-6-12-55-D	1,970
		27	LGS-A-M-24-6-12-55-D	
6way 6switched		15.5	LGS-A-M-15-6-12-66-D	2,360
		27	LGS-A-M-24-6-12-66-D	

■Switch construction

All TriPak switch components and entrances shall be assembled in a single 3mm~5mm thick mild steel or stainless steel tank with entrances internally connected by copper or aluminum bus capable of handling momentary and continuous current duty. Switch tank shall be designed to withstand 5 psig internal pressure and to be operated at minimum gas pressure of 2 psig.

① Switch tanks

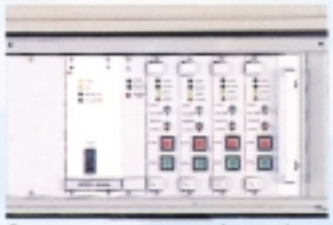
② Main bushing Earth bushing



③ Viewing windows

⑥ Earth terminal

⑦ Name plate



⑧ Remote controller(option)

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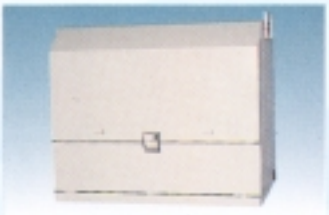
Standard components

① Switch tanks
are made from stainless steel or mild steel with all welded construction and specially each corners are double welded to assure a leak-tight seal. External components and hardware are either stainless steel or brass and the tanks are fully filled with SF6 Gas at factory.

② Main bushing Earth bushing
are mounted inside the switch tank, free from external operating pressure. The operating device forward to ground(earthed) position shall be designed independance of main switch of "close-open".
The Rotary-puffer operator assembly provides rugged construction capable of full load duty for thousands of operations without the risk or any trouble.
The rotary operating mechanism incorporates position indicators and provisions of padlocking.

④ Gas pressure gauge
Low pressure warning devices
Bronze grounding lug

⑤ Gas fill valve



⑨ Padmount Enclosure

⑩ Voltage indicator lamps

③ Viewing windows
provides a means to verify switch contact position visually and single phase or three-phase contact viewing is also available.

④ Gas pressure gauge
Low pressure warning device
Bronze grounding lug
is color-coded for easy reading of correct pressure and operating range.
Mechanical protection is provided by surrounding protective tube filled with clear sealant.

⑤ Gas fill valve
sealed and protected by a threaded brass cap, operates similarly to a tire valve and provides access for filling or addition of SF6 gas.

⑥ Earth terminal
provides quick, convenient connection of tank and cable to system ground.

⑦ Name plate
include phase indicators, three-line circuit diagram, rating serial number information and temperature/pressure chart, all permanently mounted to the switch.

⑧ Remote controller(option)
are factory set at 2 psig and permit remote indication of internal tank pressure. One N.C and one N.O from C contact is provided for wiring by the customer.

⑨ Padmount Enclosure
are available if tamper-resistant or outdoor padmount construction is required and surrounds switch giving easy installation, double wall protection.
Enclosures are made of 12 gauge mild steel with a corrosion-resistant gray paint finished.
The enclosure can be assembled in the field or shipped factory assembled.
Options provide keylock provisions, different paint colors.

⑩ Voltage indicator lamps
On switches, 3 voltage indicator lamps may be placed on the front plate. The lamps are powered by capacitive dividers included in the bushings which have capacitive socket point.

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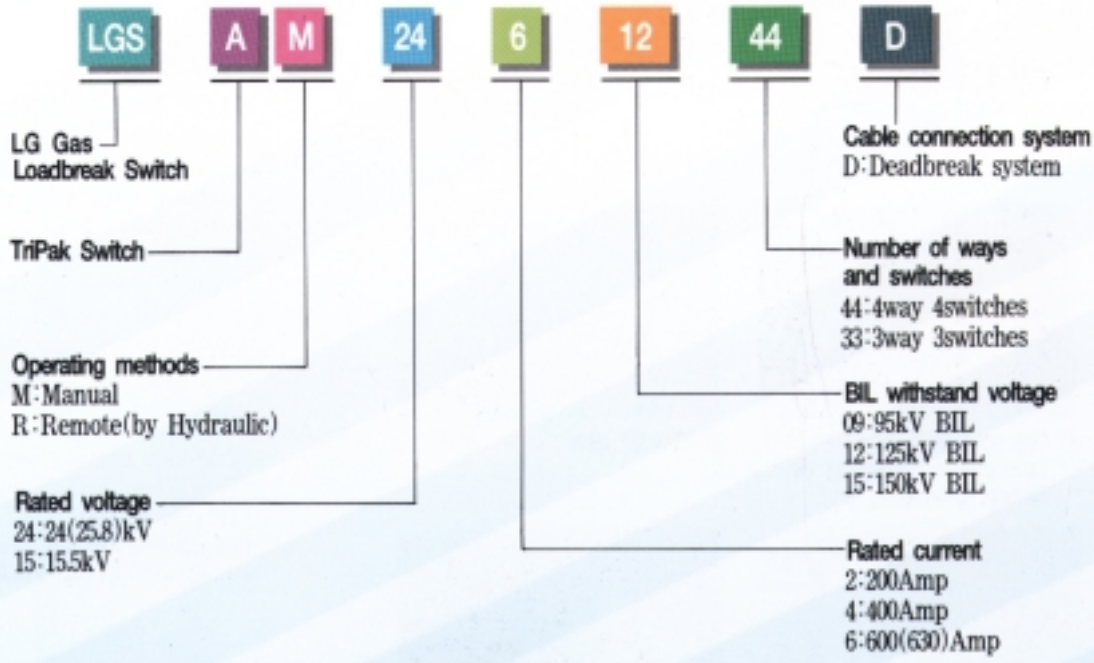
Ratings

TriPak switches are to be designed, tested and built by applicable sections of ANSI C37.71 and IEC 265-1.

Certified test report by CESI shall be provided confirming complete ANSI series results.

Maximum design voltage(kV rms)	17.5		27	
Rated voltage(kV rms)	15(15.5)		24(25.8)	
Operating voltage(kV rms)	≤10-11-13.8-15		≤20-24-25.8	
Rated frequency(Hz)	50/60		50/60	
Insulation level				
AC withstand voltage at power frequency(1 min., kV rms)	35		60	
DC withstand voltage at power frequency(15 min., kV rms)	66		96	
Impulse withstand voltage 1.2×50μs(kV peak)	95		125	
Corona extinction voltage(kV)	11		19	
Open gap BIL Flashover withstand voltage	200		200	
Continuous current(Amp)	600/630		600/630	
Load interrupting and loop switching(Amp.)	600/630		600/630	
Transformer magnetizing interrupting(Amp.)	25		25	
Capacitor or cable charging interrupting(Amp.)	40		40	
Short-time current(kA rms/1s)	12/16	12/16	12/16	12/16
Making capacity for switch-disconnectors and earthing switches(kA peak)	31.5/40	31.5/40	31.5/40	31.5/40
Operation at 600Amp. load interrupting	1,000 CO Cycle			
Mechanical life	10,000 operations			

Ordering Information



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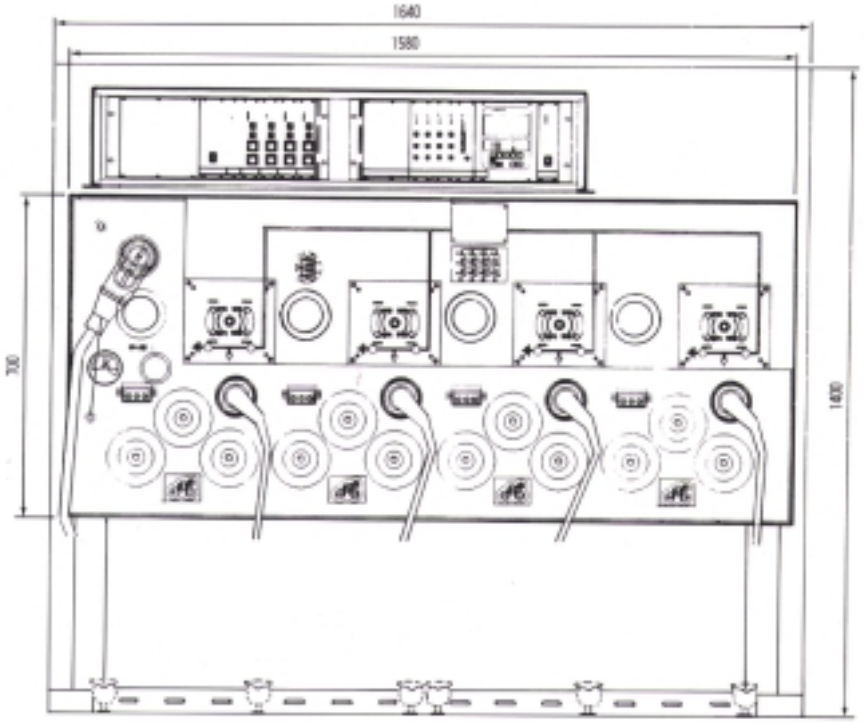
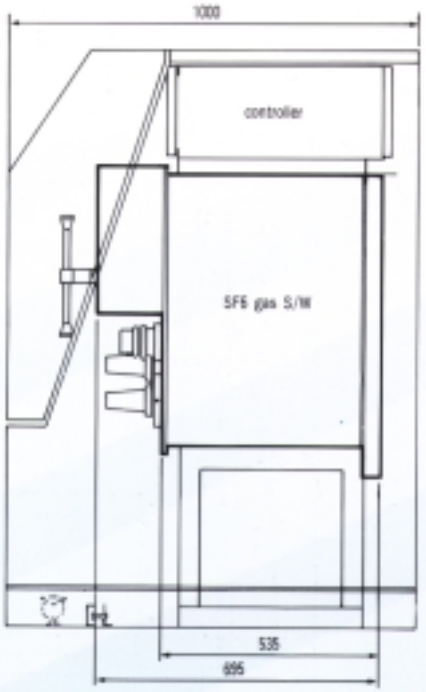
Outline dimension(mm)

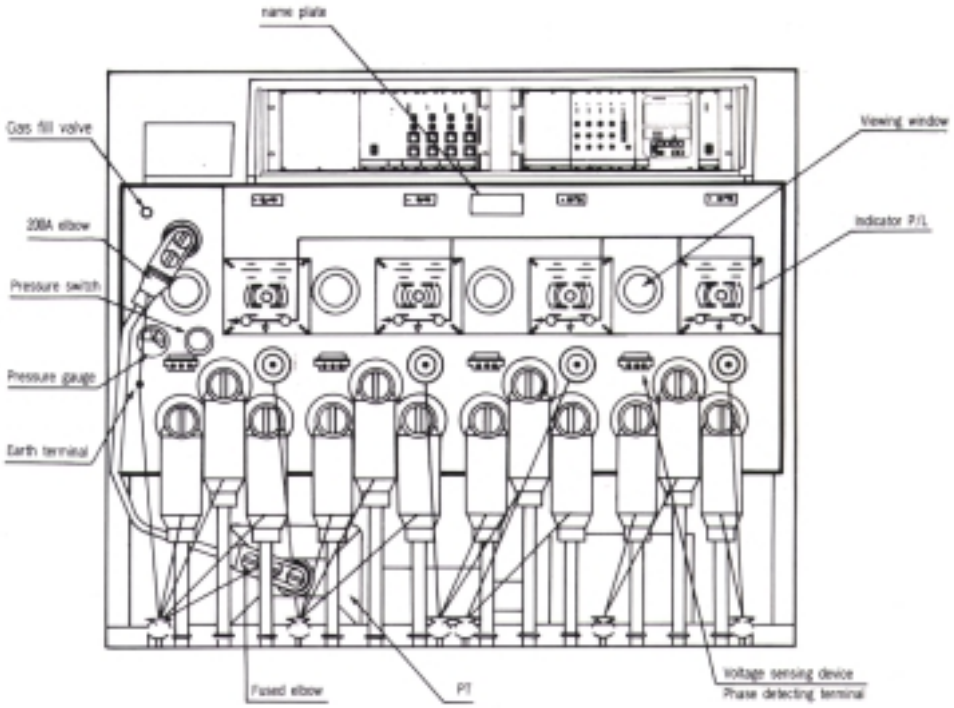
4 Way 4 switch in padmounted enclosure

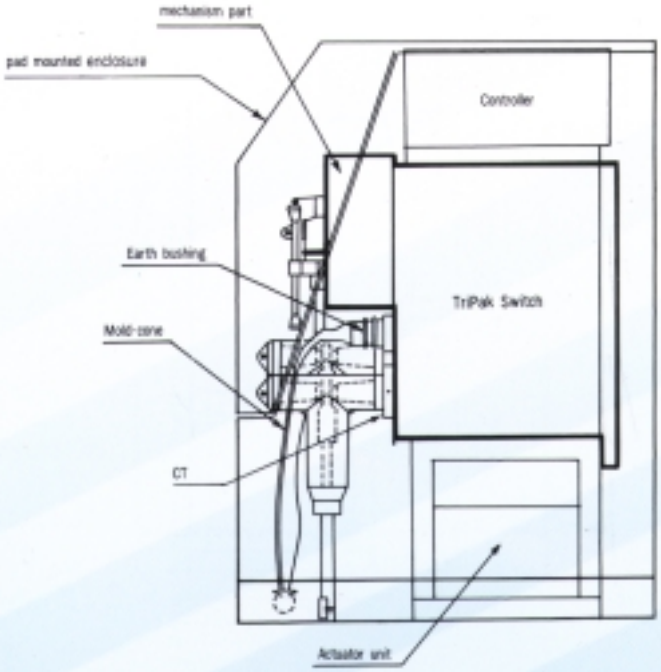




Note1. All dimensions are approximate and do not include entrance, frames.
2. Reffering to the dimension of other switches, please contact us before your order.

TriPak switch with cabel connection





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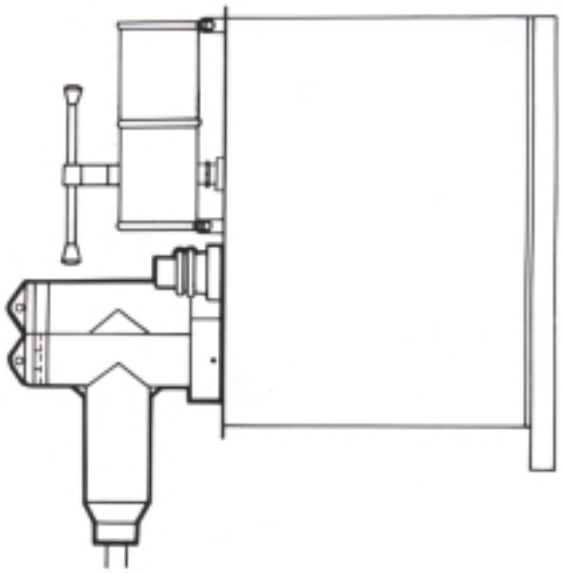
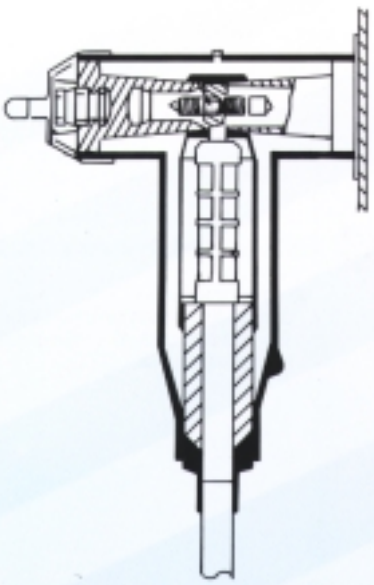
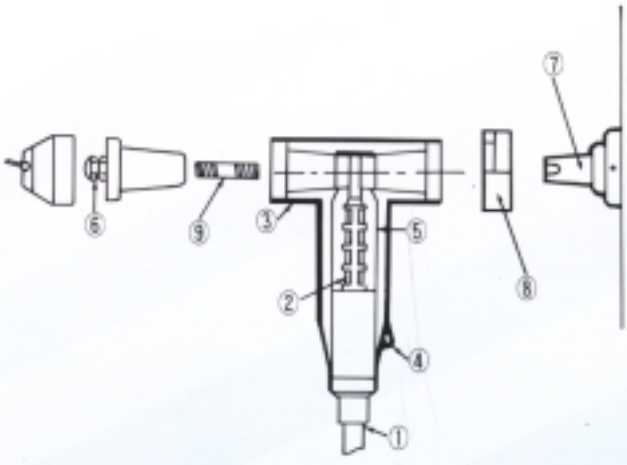
Cable connection system

Deadbreak connection systems provides a cross-sectional view of a standard 600 Amp deadfront cable connector, assembled to the mating bushing on a piece of apparatus. When the connector is completely installed the tighthned, it can perform its current carrying function in a fully insulated and shielded mode.

The connector is designed to be separable, but its seperated very Infrequently - when the apparatus is to be replaced, or the cable system is to be dismantled and a revised system installed, for example. Both the apparatus bushing and cable must be deenergized before the cable connectors can be seperated.







① Cable adapter
② Spade terminal
③ Molded conductive shield
④ Grounding eye
⑤ Wrap—around conductive inserts
⑥ Voltage test point and cap
⑦ Bushing
⑧ Current transformer(in case of remote type)
⑨ Bolted connection

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